REMARKS

Formulas (c), (g), and (l) on pages 12 and 13 have been amended to correct typographical errors. No new matter has been added.

The Examiner has objected to the abstract of the disclosure because it exceeds 150 words in length. The abstract has been amended so that it no longer exceeds 150 words in length. Accordingly, this objection should be withdrawn.

Claims 1-11 stand rejected under 35 USC 112, second paragraph, as being indefinite. This rejection is respectfully traversed. The Examiner states that claims 1-11 are indefinite for reciting only the desired physical properties of the phosphorous compound copolymerzired polymerized polyester, rather than setting forth structural and/or chemical limitations of said fabrics. In support of this rejection the Examiner cites to *Ex Parte Slob*, 157 USPQ 172 (Patent Board of Appeals 1967). This 1967 case concerned the phrase "a liquefiable substance having a liquefication temperature from about 40°C to about 300°C and being compatible with the ingredients the powdered detergent composition." Even if this case were to still apply, this case does not apply to applicants claims. *Ex Parte Slob*, concerned a substance that was identified without any structural or chemical limiations. Conversely, claims 1-11 are "polyester fiber comprising a **phosphorus compound copolymerized polyester**." A phosphorus compound copolymerized polyester is a very specific chemical limitation. Accordingly, the claims do not "cover any conceivable combination of ingredients," like the phrase at issue in *Ex Parte Slob*. Consequently, this rejection should be withdrawn.

The Examiner found claim 7 indefinite because the Examiner is unclear whether the catalyst is being claimed. Specifically, the Examiner states that "The catalyst is not part of the reaction but increases the rate at which it takes place. Therefore, the catalyst is only present in the system during the reaction but is not present in the final product. For this reason, the Examiner will not give weight to this limitation." The Examiner's logic is incorrect. As the Examiner notes, a catalyst is not part of the reaction. Accordingly, the catalyst does not disappear following the reaction, but instead remains in the system and the final product unless it

is removed. Accordingly, claim 7 should be read to include the catalyst.

Finally, the Examiner has found claims 8-10 indefinite because it is unclear what a "woven, knitted fabric is." Claims 8-10 have been amended in accordance with the Examiner's suggestion to claim a "woven or knitted fabric." Accordingly, this rejection should be withdrawn.

Claim 1-6 and 8 stand rejected under 35 USC 102(b) as being anticipated by or in the alternative under 35 USC 103(a) as obvious over Endo. This rejection is respectfully traversed. Claim 1 claims a **polyester fiber** comprising a phosphorous compound copolymerized polyester satisfying formulas (1)-(3). Endo describes a flame-retardant polyester containing a phosphorous compound. It is the Examiner's contention that because Endo describes a flame-retardant polyester containing a phosphorous compound, the properties of formulas (1)-(3) are inherent. This contention is incorrect. The properties of formulas (1)-(3) are not properties that are are associated only with the polyester compound; rather these are properties of the polyester fiber. Endo does not describe a polyester fiber produced in the manner described by applicants, accordingly Endo does not describe a polyester fiber that would inherently satisfy formulas (1)-(3).

Specifically, formulas (1)-(3) and the limitation regarding the heat shrinkage in hot water relate to the performance of the polyester fiber and the manufacturing methods used to make the fibers as follows:

(a) tan $\delta_{max} \geq 0.1740$ (formula 1)

When tan δmax is less than 0.1740, the dyeing property of the fiber becomes extremely low (page 18, lines 30 - 33). When the draw ratio of the fiber is too high, this range cannot be met and the dyeing property is degraded.

(b) T*a*-3.77 x In (dtpf) ≤137.0 (formula 2)

When the temperature is outside this range, the dyeing property of the fiber is degraded (page 19, lines 7 - 11). Again, when the draw ratio of the fiber is too high, this range cannot be met and the dyeing property is degraded.

(c) $1.331 \leq SG - \frac{\sqrt{\Delta n}}{8.64} \leq 1.345$ (formula 3)

When the value is lower than this range, the molecular orientation degree relative to the degree of crystallinity becomes too high causing the amorphous portion to become too dense. This results in a fiber having inferior dyeing properties and abrasion resistance. Conversely, when the value is higher than this range, the molecular orientation degree relative to the degree of crystallinity becomes too low. This results in a superior dyeing property but lowers heat stability because the shrinkage in boiling water grows as the fiber tenacity decreases (page 19, lines 15 - 26). Also, when the draw ratio is too high, this value tends to fall below this range and the dyeing property and abrasion resistance of the fiber are degraded.

Finally, claim 1 has been amended to specify that the polyester fiber has a shrinkage in hot water of not more than 10%. This limitation was previously in claim 5. When the shrinkage in hot water exceeds 10%, the fiber shows poor heat stability, marked dimensional changes in the subsequent steps, and imparts a rough and hard feeling to cloth made from the fiber (page 20, lines 11-17). When the temperature for the setting during the drawing step is less than 155°C, the setting is insufficient and the heat shrinkage tends to exceed this range.

Endo fails to describe a fiber made as described in the specification and accordingly, the fibers would not inherently possess the characteristics of formulas (1)-(3) and the claimed shrinkage in hot water characteristic.

The only examples in Endo of a polyester fiber are in Examples 10 and 11. The production conditions of the fibers in Examples 10 and 11 are clearly different from those of the present invention. In the examples, a non-drawn yarn was obtained at a taking up speed of 600 m/min and is drawn at a draw ratio of 4.6.

The fiber described in the specification is made by melt spinning and by taking up the polymer at a speed of 1000 m/min-4500 m/min (The specification, page 16, lines 9-13). This is much greater than the taking up speed used in Endo. When the taking up speed used by Endo is

used, the taking up speed is too slow, making a slow shear rate, which in turn produces a fiber having low strength and degraded abrasion resistance. To eliminate such defects, Endo employed a markedly high draw ratio. As described above, a fiber made using a such high draw ratio will not be able to satisfy the above-mentioned formulas (1) – (3).

Further, in Endo the temperature of the heated plate during drawing is only 90°C. Applicants describe a polyester film in which the temperature for setting during the drawing step is preferably not less than 155°C. When it is less than 155°C, the setting becomes insufficient and the heat stability is degraded (page 18, lines 10 - 12). The heat stability is related to the shrinkage of the fiber in hot water. Accordingly, because the temperature of the heated plate during the drawing is too low, the fibers described in Endo would have a shrinkage in hot heat stability of greater than 10%. In addition, since the production conditions used by applicants are generally not employed in the field, those of ordinary skill in the art would not use the conditions used by applicants absent applicants' disclosure.

Since the fibers in Endo do not inherently satisfy the above-mentioned formulas (1) –(3) and do not have a shrinkage in hot water of not more than 10%, claim 1 should be allowed. Claims 2-6 and 8, which depend from claim 1, should be allowed for at least the same reasons.

Claim 7 stands rejected under 35 USC 103(a) as being unpatentable over Endo in view of Siegrist. Claim 7 depends from claim 1. As described above, Endo fails to describe a polyester fiber that posses the characteristics of formulas (1) –(3) or that has the claimed shrinkage in hot water of not more than 10%. Further, Siegrist fails to describe a fiber with the claimed characteristics. Accordingly, claim 7 should be allowed.

Claims 9-11 stand rejected under 35 USC 103(a) as being unpatentable over Endo in view of Vogt. This rejection is respectfully traversed. Claims 9-11 depend from claim 1. As described above, Endo fails to describe a polyester fiber that posses the characteristics of formulas (1) –(3) or that has the claimed shrinkage in hot water of not more than 10%. Further, Vogt fails to describe a fiber with the claimed characteristics. Accordingly, claims 9-11 should be allowed.

For the foregoing reasons a notice of allowance is solicited.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 325772027200.

Respectfully submitted,

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